Amendment to the Claims:

     1.   (Cancelled).

     2.   (Currently Amended) ~~The~~ A diagnostic image processing system ~~as set forth in claim 1, further including~~ comprising:

a user interface ~~(36)~~ with which a user selects a region of interest of at least a baseline ~~one of the~~ diagnostic images from which ~~the~~ parameter values are to be extracted:

a parameter extraction processor for extracting like parameter values from the selected region of interest of the diagnostic images or from data for generating the baseline and stored diagnostic images;

a subject database that stores the diagnostic images each in association with at least a patient identity and a date, the database being updated each time a patient is imaged; and,

a report formatting means for formatting the extracted parameter values from the baseline and diagnostic images generated at different times into a report descriptive of the parameter value development with time.

     3.   (Cancelled).

     4. (Currently Amended)   The system as set forth in claim 2 ~~3~~, further including:

an image registration processor ~~(54)~~ that aligns and scales the selected region of interest of the stored diagnostic images and the baseline diagnostic image.

     5. (Currently Amended)   The system as set forth in claim 2, further including:

a database searching means ~~(50)~~ for searching the subject database ~~(10)~~ for ~~other~~ the stored diagnostic images of the selected region of interest of the patient ~~subject, the parameter extraction processor (46) extracting the selected parameter values from the other diagnostic images of the selected region.~~

6. (Currently Amended)   The system as set forth in claim 5, wherein the report formatting means (60) includes a graphing means (64) for plotting change of a selected parameter versus time.

7. (Currently Amended)   The system as set forth in claim 4 5, further including a cinè image sequence generator generating means (100) for converting the selected region of interest of the baseline and stored diagnostic images into a temporally scaled sequence of cinè images.

8. (Cancelled).

9. (Currently Amended)   The A method of diagnostic image processing as set forth in claim 8, further including:

generating diagnostic image representations including the a selected region of interest of the a subject at different dates; and,

storing the generated diagnostic image representations in the a subject database (10) catalogued by at least subject identity and date;

generating and displaying a baseline diagnostic image representation including the selected region of interest of the subject;

searching the subject database for the diagnostic image representations including the selected region of interest of the subject;

extracting user selected parameter values from the selected region of interest of the displayed baseline and retrieved diagnostic image representations of the subject;

formatting the extracted parameter values from the retrieved and baseline diagnostic image representations into a report.

10. (Cancelled).

11. (Currently Amended)   The method as set forth in claim 9 10, further including:

registering the selected region of interest of the diagnostic image[[s]] representations retrieved from the subject database with the selected region of interest of the baseline image representations.

12. (Currently Amended)   The method as set forth in claim 11, further including:

displaying   the   registered   diagnostic   image[[s]]   representations sequentially by date.

13. (Currently Amended)   The method as set forth in claim 12, further including:

temporally   interpolating   the   registered   diagnostic   image[[s]] representations such that the sequentially displayed image[[s]] representations are displayed with a linear time scale.

14. (Cancelled).

15. (Currently Amended)   The method as set forth in claim 9 14, wherein the formatting step includes:

presenting the selected parameter values extracted from the baseline and retrieved diagnostic image representations in tabular format by date.

16. (Currently Amended)   The method as set forth in claim 9 15, wherein the formatting step includes:

presenting the selected parameter values extracted from the baseline and retrieved diagnostic image representations in a graph versus time with a pre-selected time scale.

17. (Currently Amended)   The method as set forth in claim 9 14, wherein the parameter values include at least one of:

a volume of the selected region;

a blood flow through the selected region;

an average density in the selected region;

diffusion coefficients of the selected region;

fractional diffusion anisotropy values in the selected region; and,

spectroscopic peak intensities in the selected region.

18. (Original)   A method of diagnostic imaging comprising:

creating an image representation of a portion of a subject;

selecting a region of the image representation for further study;

storing the image representation in a subject database cataloged by at least a subject identity and a date of scan;

extracting selected parameter values from the image representation and storing them in the subject database;

creating at least one other image representation of the portion of the subject on a subsequent date;

storing the at least one other image representation and other additional values of interest in the subject database;

spatially registering the image representation and the at least one other image representation;

displaying the image representations to show a time progression of the region.

19. (Original) The method as set forth in claim 18, further including:

presenting the selected parameter values in one of graphical and tabular form showing a progression of the parameter values over time.

20. (Original) The method as set forth in claim 18, wherein the image representation and the at least one other image representation are produced by different modalities of diagnostic imaging and registered by aligning structures identifiable in all modalities involved, and further including:

enhancing the resolution of the image representations by utilizing complementary characteristics of the modalities involved.

21. (New) The method as set forth in claim 18, wherein the selected parameter values include a size of a tumor and the displaying step includes showing a time evolution of the size of the tumor.